Principles of Environmental Restoration

Techniques for Streamlining RCRA (HSWA) and CERCLA Projects

Sponsored by:

US Department of Energy (DOE)

- and -

US Environmental Protection Agency (EPA)

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Notes on course format:

- The top half of the left-side pages in this notebook (shown on the left-side overheads) present the main concepts of this course

- Students notes, presented on the bottom half of the left-side pages, provide additional detail and information on the main concepts

- The right-side pages in this notebook (shown on the right-side overheads) provide examples and reference information relevant to the main concepts

Agenda

Day 1	a. Introduce four principles of environmental restoration b. Discuss each principle c. Complete sample exercises for each principle
Day 2	a. Review of Day 1 b. Apply principles to environmental response design and implementation c. Second case study d. Team building concepts

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Detailed Agenda for Day 1:

• Welcome/introduction

• Introduction to four principles of environmental restoration

• Principle 1: Building an effective core team

• Break

• Principle 2: Problem identification and definition

• Lunch

• Principle 3: Early identification of likely response actions

• Break

• Principle 4: Managing uncertainties

• Wrap-up

The goal for today is to gain an applied understanding of each of the four principles and how to integrate them to streamline environmental restoration projects

Today will set the stage for extensive discussion and interaction during the following day

Workshop objectives

- Encourage strategic thinking, problem solving, and teamwork

- Encourage project teams to identify and seize all cost and schedule cutting opportunities

- Better communication of site problems, and the rationales for proposed solutions, to interested stakeholders

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Enhancing team building skills among attendees by working on technical issues is an overall goal of this course

The ultimate goal is to help sites accelerate schedules and reduce cost of environmental restoration programs through better strategic thinking about problems and their solutions, consistent with the technical objectives agreed to by core team members

Maximize the degree to which resources are focused on achieving environmental restoration as opposed to studying the problem is another objective

The four principles are not a new streamlining approach that represent the only way to do things. Rather, they are the underpinnings of nearly every streamlining initiative. Focusing on and using these principles will lead to better environmental restoration projects

This course will also demonstrate how these environmental principles apply to design and action, the ultimate purpose of environmental restoration

Your role in this workshop

- To get the most out of this workshop:

    – Set aside "perceptions" of regulatory constraints

    – Actively participate

    – Continually assess how the course principles can be applied to your projects

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This workshop:

•Maintains a strategic focus rather than emphasizing process or specific "tools" - we assume you know the process and tools well enough

•Identifies underlying principles that result in successful streamlining of environmental restoration projects, recognizing that these principles will always need to be tailored to site-specific circumstances

•Is based on extensive field experience and successful implementation of these principles in environmental restoration projects

•Relies extensively on short presentations, examples, and group discussion. You will be working in a group, or "core team" throughout the course to complete several short exercises and two longer case studies

•Work to build an effective core team of decision makers on exercises and case studies

Four principles of environmental restoration

- Building an effective core team is essential

- Clear, concise, and accurate problem identification and definition are critical

- Early identification of likely response actions is possible, prudent, and necessary

- Uncertainties are inherent and will always need to be managed

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This workshop will focus on these four principles. Although the principles themselves are not new, effectively applying them together in restoration projects is not always done

These principles are the basis for effective problem solving under any environmental restoration regulatory authority

These principles apply throughout the environmental restoration process - from scoping to implementation, with a focus on implementation

Using these principles will better focus projects and lead to better recognition of streamlining opportunities by the project team

These same principles are an excellent basis for organizing information to communicate with, and involve stakeholders, including the public, to achieve earlier decisions and consensus, leading to better projects

The table on the next page introduces some of the key questions to consider when applying these principles, and likely benefits from cost savings and schedule reduction

Key assertions

- Principles are implicit in the NCP and RCRA corrective action policies
- Adherence to the principles saves time and reduces costs
- Traditional "barriers" to streamlining can be overcome through teamwork and early consensus
- Proper focus of environmental restoration is implementing response actions
- All stakeholders want to achieve acceptable levels of risk

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These assertions are the basis for the streamlining approaches advocated

We recognize both RCRA corrective action and CERCLA allow, without further regulatory or statutory modification, flexibility in what can be done assuming certain basic steps are followed. The emphasis of both is to decide whether to take action to solve problems, not to conduct investigations. Collecting data should be done when it fills clearly defined data needs (not all data gaps)
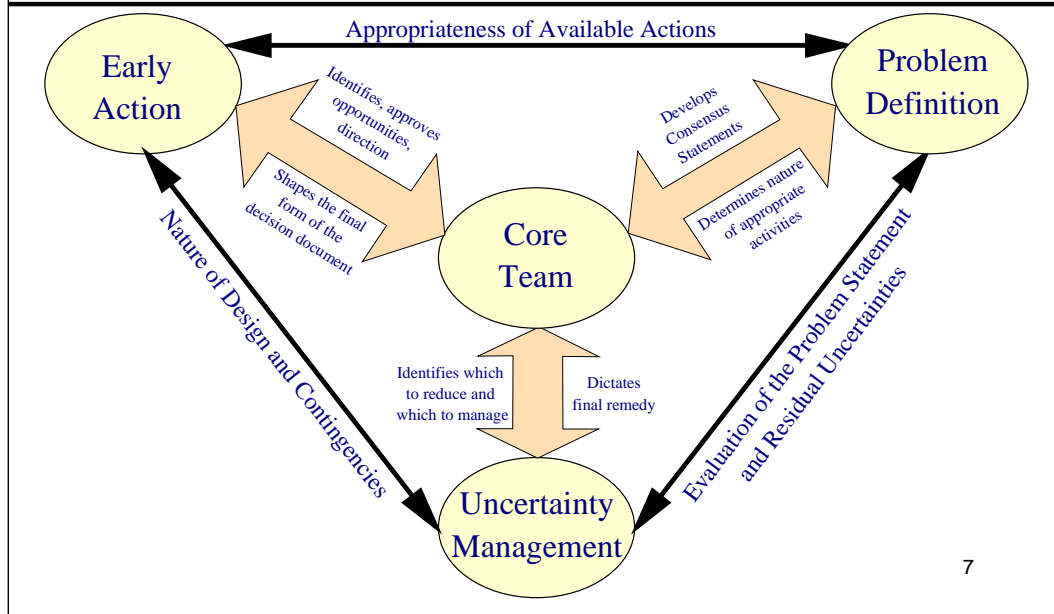
Historically, this regulatory and policy flexibility that now exists has not been well used. FFAs traditionally have focused on deliverables (e.g., RI reports) and not on actions

Why? Regardless of type or magnitude of problem, nearly all characterization and assessment activities are seen as extensive processes, often because existing FFAs require many documents to be completed

Every stakeholder's ultimate objective is to achieve acceptable levels of risk. Differences traditionally arise in defining acceptable levels of risk, and in determining the level of confidence in alternative approaches to achieving acceptable levels of risk. The latter relates to our ability to identify and manage uncertainty

The core and project teams' willingness to utilize this inherent flexibility is the ultimate key to success

Interactions between the four principles

Appropriateness of Available Actions

Early Action

Identifies, approves opportunities, direction

Shapes the final form of the decision document

Core Team

Develops Consensus Statements

Determines nature of appropriate activities

Problem Definition

Nature of Design and Contingencies

Evaluation of the Problem Statement and Residual Uncertainties

Identifies which to reduce and which to manage

Dictates final remedy
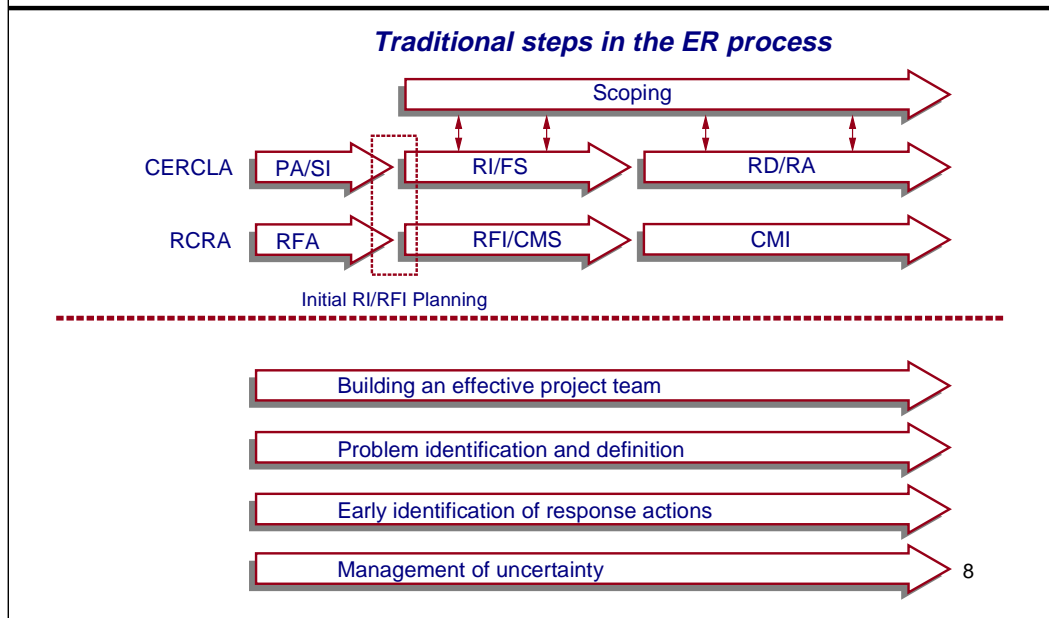
Uncertainty Management

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The level of success in implementing the other three principles effectively is directly related to the effectiveness of the core team

How core teams apply these principles will vary from site to site and from project to project

It is the core team's responsibility to integrate these principles

Timing

Traditional steps in the ER process

Scoping

CERCLA	PA/SI	RI/FS	RD/RA
RCRA	RFA	RFI/CMS	CMI

Initial RI/RFI Planning

Building an effective project team

Problem identification and definition

Early identification of response actions
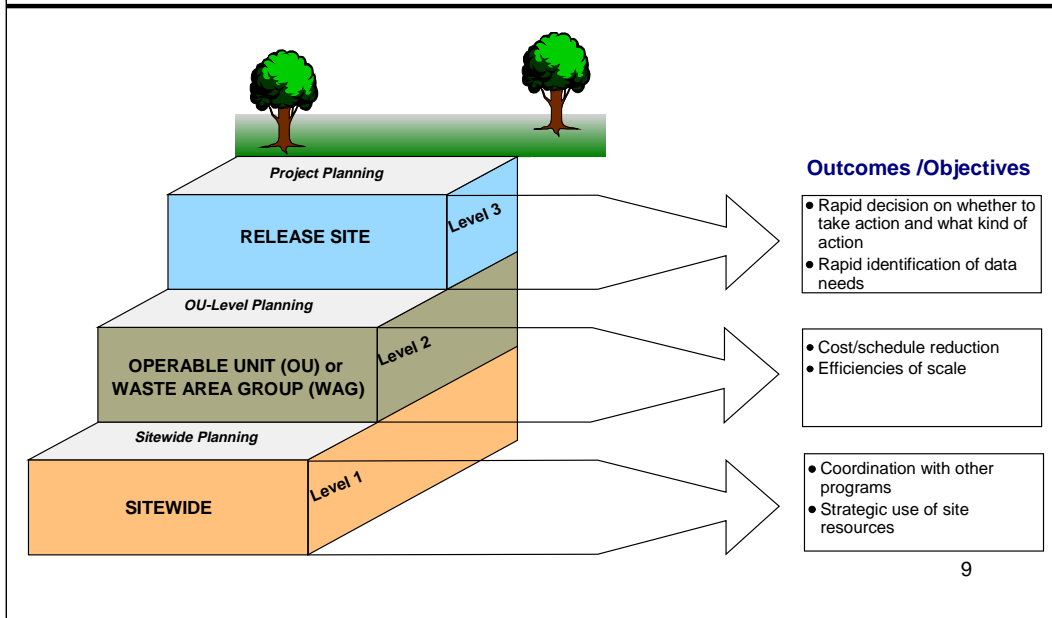
Management of uncertainty

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The core team is responsible for advancing the project through all phases of the environmental restoration process, generally starting with initial planning of an RI or RFI, but sometimes before

The four principles apply to each phase. The specific activities will differ from phase to phase as more information becomes available, and the focus of projects shifts from determining whether a condition exists that warrants a response, to what response is needed, to implementing the response action. For example:

•Problem definition initially focuses on whether site conditions require a response, but shifts as early as possible to what response is needed

•Response consideration evolves from general response actions to specific technologies and process options

Uncertainties initially focus on resolving whether site conditions require a response, but shift to the response itself once a decision to take action is made

Applying the principles at different "activity" levels

Project Planning

RELEASE SITE — Level 3

OU-Level Planning

OPERABLE UNIT (OU) or WASTE AREA GROUP (WAG) — Level 2

Sitewide Planning

SITEWIDE — Level 1

Outcomes /Objectives

- Rapid decision on whether to take action and what kind of action
- Rapid identification of data needs

- Cost/schedule reduction
- Efficiencies of scale

- Coordination with other programs
- Strategic use of site resources

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The four principles work at all three site activity levels:

•At the OU, WAG, and release site-levels, they focus on defining the problems that exist, likely response actions for the problems, and definitional and implementation uncertainties

•Site wide, their use can help to establish environmental restoration priorities and what site-wide issues, if any, exist regarding implementation of certain types of response actions